

## METHOD AND APPARATUS FOR FILTERING AND COMPRESSING SOUND SIGNALS

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### ABSTRACT OF THE DISCLOSURE

Improved approaches are disclosed to filter and compress sound signals so as to achieve not only speech audibility and intelligibility at low  
10 levels but also preserves spectrum contrast at high levels. According to one aspect of the invention, gain amounts for different frequency bands are individually constrained based on signal levels for the frequency bands. Hence, the gain amounts for each of the frequency bands may or may not be constrained depending on the corresponding signal levels. As a result, the  
15 most critical information for speech intelligibility, speech clarity, and speech quality can be made available to hearing impaired people over wide range of signal level. The invention is particularly useful for hearing aids or other sound systems for the hearing impaired.